	Application No.	Applicant(s)	
Notice of Allowability	10/675,094	NOWICKI ET AL.	
	Examiner	Art Unit	
	Abolfazl Tabatabai	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to _amendment filed on May 21, 2007_.

2. ☒ The allowed claim(s) is/are _2-4, 6-14, 16-18, 20, 21, 24-28, 30 and 31 (now renumbered 1-24)_.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

        a)☐ All   b)☐ Some*   c)☐ None   of the:

           1. ☐ Certified copies of the priority documents have been received.

           2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

           3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

       * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

       (a)☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

          1)☐ hereto or 2)☐ to Paper No./Mail Date _____ .

       (b)☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

          Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),
   Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
   Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

The application has been amended as follows:

2.   Authorization for this Examiner's amendment was given in a telephone interview

with Applicant's Attorney (Mr. Partick J. Daugherty with registration # 41,697), on

Tuesday July 10, 2007, without traverse.

3.   Canceled claim 23.

4.   Please amend claim 24 as follows:

24.   (Currently Amended) A data processing system for efficient scaling in the

transform domain when transform coefficient data provided as an input, comprising:

        a processor means configured to process scaling data represented by the

transform coefficient data in the transform domain by application of a combined matrix

to said transform coefficient data;

        a single register; and

        a computational subsystem;

        wherein the processor means is configured to define the combined matrix by

selecting a scaling term g according to a predetermined cost function so that the largest

error on any transform coefficient is no larger than a predetermined error percentage.

        wherein the combined matrix is defined by first, second, third and fourth

transforms and the processor means is configured to:

determine first and second precisions to be allocated in the single register to hold respective first and second signed data elements;

pack first and second signed data the elements into the register;

operate on the first and second signed data elements;

determine third and fourth precisions to be allocated in the single register to hold respective third and fourth signed data elements, at least one of the first and third precision being different from each other, and the second and fourth precisions being different from each other;

pack the third and fourth elements into the register; and

operate on the third and fourth elements; and

wherein the register is configured to send plural data elements simultaneously to the at least one computational subsystem.

Drawings

5.   **The drawings were received on September 30, 2003. The Examiner accepts these drawings.**

Reasons for Allowance

6.   Applicant's amendment/argument (pages 13-16) filed on May 21, 2007, has been fully considered and are persuasive. As a result of canceled claims 1, 5,15,19, 22, 23

and 29 the art rejection of claims 2-4, 6-14, 16-18, 20, 21, 24-28, 30 and 31 have been

withdrawn. Therefore, claims 2-4, 6-14, 16-18, 20, 21, 24-28, 30 and 31 are allowable.

3.   The following is an Examiner's statement of reasons for allowance.

The prior art of record fails to teach or suggest, efficient scaling in transform domain

Comprising (a) the data processing system scaling data represented by the transform

coefficient data in the transform domain by applying the combined matrix to said

transform coefficient data; wherein generating the combined matrix comprises the steps

selecting a rational scaling factor F; selecting a matrix dimension value m; and

selecting a smallest integer g wherein $(Fg)/m$ is an integer k; generating a first matrix

operating on at least one (mg) x (m) matrix by: zeroing out at least one row or at least

one column of said matrix; or inserting at least one row of zeros or at least one column

of zeros into said matrix; generating a second matrix by applying a one-dimensional

inverse transform to the first matrix; and generating a third matrix by regrouping said

second matrix so that it is conceived of as being composed of k (m) x (m) matrices; and

generating the combined matrix by applying a one-dimensional forward transform to

said third matrix in combination into other features and elements of claims 2, 16 and 30;

(b) the data processing system scaling data represented by the transform coefficient

data in the transform domain by application of the combined matrix to said transform

coefficient data simultaneously in two-dimensions; wherein generating the combined

matrix for two-dimensional scaling comprises the steps of: selecting horizontal scaling

parameters Fh, mh and gh; selecting vertical scaling factors Fv, my, and gv; generating

a first combined matrix for horizontal scaling using parameters Fh, mh, and gh;

generating a second combined matrix which operates on said first combined matrix using parameters *Fv, mv,* and *gv*; and combining the first and second matrices into a single combined matrix in combination into other features and elements of claims 6, 20 and 31; (c) the data processing system scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data wherein the combined matrix operates according to the following the steps of: determining first and second precisions to be allocated in a single register to hold respective first and second signed data elements; packing the first and second elements into the register; operating on the first and second elements; determining third and fourth precisions to be allocated in the single register to hold respective third and fourth signed data elements, at least one of the first and third precision being different from each other, and the second and fourth precisions being different from each other; packing the third and fourth elements into the register; operating on the third and fourth elements; and the register sending plural data elements simultaneously to at least one computational subsystem in combination into other features and elements of claims 10 and 24.

4.   **Claims 2-4, 6-14, 16-18, 20, 21, 24-28, 30 and 31 (now renumbered 1-24) are allowed.**

5.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Citation of Relevant Prior Art

6.   The prior art made of record and not relied upon is considered pertinent

to applicant's disclosure.

Schwartz et al (U. S. 6,058,215) disclose reversible DCT for lossless-lossy

compression.

Sunshine et al (U S 5,774,598) disclose system and method for sample rate

conversion of an image using discrete cosine transforms.

Contact Information

7   .   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is

(571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to

7:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the

Examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax

phone number for organization where this application or proceeding is assigned is (571)

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai
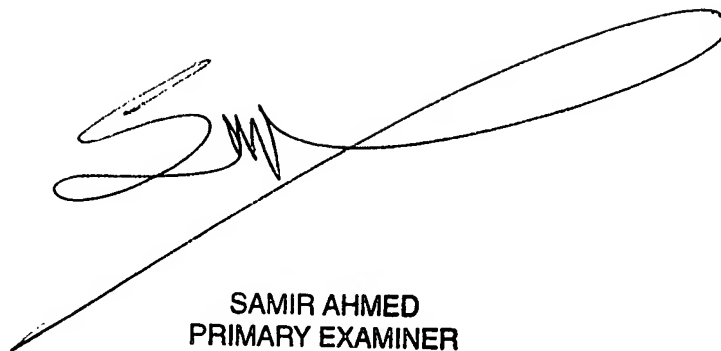
Patent Examiner

Technology Division 2624

July 10, 2007

A-Tabatabai

SAMIR AHMED
PRIMARY EXAMINER